



EL MONTE UNION HIGH SCHOOL  
DISTRICT 3537 JOHNSON AVENUE  
EL MONTE, CA 91731  
BID NO. 2017-18(B4)  
INSTALLATION OF DISTRICT-OWNED  
SURVEILLANCE CAMERAS AND  
WIRELESS ACCESS POINTS DISTRICTWIDE  
(BID PACKET SECTION 16010)

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of all Contract Documents shall apply to this Section.
- B. Section Includes: This section provides basic electrical requirements.
- C. Related Sections:
  - 1. Section 16050: Basic Electrical Materials and Methods.
  - 2. Section 16060: Grounding and Bonding.
  - 3. Section 16806: Computer Networking Systems.

1.02 BASIC ELECTRICAL REQUIREMENTS

- A. Quality Assurance:
  - 1. Workers possessing the skills and experience obtained in performing work of similar scope and complexity shall perform the Work of this Division.
  - 2. Refer to other sections of the Specifications for other qualification requirements.
  - 3. Applicable Codes
    - a. 1998 Building Standards Administrative Code, Part r, Title 24 CCR

- b. 1998 California Building Code (CBC), Part 2. Title 24 CCR 0997 UBC Vol 1-3 and 1998 California Amendment)
  - c. 1998 California Electrical Code (CEC), part 3. Title 24 CCR (1996 NEC and 1998 California Amendment)
  - d. 1998 California Mechanical Code (CMC), Part 4, Title 24 CCR (1997 UMC and 1998 California Amendments)
  - e. 1998 California Plumbing Code (CPC). Part 5, Title 24 CCR (1997 UPC and 1998 California Amendments)
  - f. 1998 California Fire Code (CFC), Part 9. Title 24 CCR (1997 UFC and 1998 California Amendments)
  - g. 1998 California Referenced Standards, Part 12, Title 24 CCR.
  
  - h. 1990 Title 19 CCR. Public Safety. State Fire Marshal Regulations NFPA 13, 1996 Edition. Automatic Sprinkler Systems
  - i. NFPA 14. 1993 Edition, Standpipe Systems
  - j. NFPA 17A, 1990 Edition, Wet Chemical Systems
  - k. NFPA 24, 1992 Edition. Private Fire Mains
  - l. NFPA 72. 1996 Edition. National Fire Alarm Code (California Amended. Note: See UL Standard 1971 for "Visual Devices")
  - m. NFPA 253. 1989 Edition, Critical Radiant Flux of Floor Covering Systems.
  - n. NFPA 2001, 1994 Edition, Clean Agent Fire Extinguishing Systems (Reference code section for NFPA Standards - CBC (SFM) 3504.1)
4. All electrical and plumbing equipment shall be anchored and/or braced to resist lateral forces acting in any direction per CBC 1998 Section 1632A.
- a. Coefficients in CBC Section 1632A formulas shall be:
    - 1)  $IP = 1.15$
    - 2)  $Ca = .44$
  - b. Conduit systems shall be braced per CBC 1632A.6.
  - c. Where anchorage/bracing details are not shown on the drawings (for equipment weighing less than 400 pounds only) the field installation shall be per SMACNA Standards and shall be subject to the approval of the Owner and its agents and inspecting authorities having jurisdiction.

B. Terminology:

1. Signal Systems: Applies to clock, bell, fire alarm, annunciator, sound, public address, buzzer, telephone, television, inter-communication, and security systems.
2. Low Voltage: Applies to signal systems operating at 120 volts and less.

3. UL: Underwriters Laboratories Inc.
- C. Regulations: Work shall comply with the requirements of authorities having jurisdiction and the California Electrical Code. Material shall conform to regulations of the National Board of Fire Underwriters for electrical wiring and apparatus. Materials shall be new and UL listed.
  - D. Structural Considerations for Conduit Routing and Mounting of Projectors and other Audio-Visual and Computer Equipment:
    1. Where conduits pass through or interfere with any structural member, or where notching, boring or cutting of the structure is necessary, or where special openings are required through walls, floors, footings, or other buildings elements, conform to CBC, Part 2, Title 24, Section 1906 for conduits and pipes embedded in concrete and Section 2326.11.9 and 2326.11.10 for notches and bored holes in wood; for steel, as detailed on the structural steel Shop Drawings.
    2. Contractor shall engage the services of a Structural Engineer currently registered to practice Structural Engineering in the State of California to provide all structural support designs and details necessary to mount and fasten/attach all equipment to be installed as part of this Work, including projectors, screens, racks, etc. Such designs and details shall be submitted by Contractor to Owner for approval prior to commencing the related Work. Contractor shall not install such equipment without first obtaining Owner's approval to do so.
  - E. Electrically Operated Equipment and Appliances:
    1. Furnished Equipment and Appliances:
      - a. Work shall include furnishing and installing wiring enclosures for, and the complete, connection of electrically operated equipment and appliances and electrical control devices which are specified to be furnished and installed in this or other sections of these Specifications. Wiring enclosures shall be concealed. Contractor shall provide all necessary breaking, etc. as well as related repair and refinishing.
      - b. Connections shall be provided as necessary to install equipment ready for use. Equipment shall be tested for proper operation and, if motorized, for proper rotation. If outlets are of incorrect electrical characteristics or any specified equipment fails to operate properly, repair and/or replace the outlet and/or equipment.

2. Equipment and Appliances Furnished by Others:

- a. Equipment and appliances indicated in these Contract Documents as "not in contract" (NIC). "furnished by others," or "furnished by the Owner:" will be delivered to the Project site. Required electrical connections shall be performed for such equipment and appliances. Motorized equipment will be furnished factory-wired to a control panel or junction box unless otherwise indicated. Appliances will be furnished equipped with portable cord and cap. Provide disconnect switches where required.
- b. Connections to equipment furnished under this Contract shall be part of the Work of this section. Work shall include internal wiring, installation, connection and adjustment of bolted drive motors in which the motor is supplied as a separate unit, and connections only for equipment furnished with factory installed internal wiring, except as further limited by Drawings and this Specification. Work shall include furnishing and installing suitable outlets, disconnecting devices, starters, push-button stations, selector switches, conduit, junction boxes, and wiring necessary for a complete electrical installation.
- c. Suitability and condition of equipment to be installed as part of this Work shall be determined in advance of installation. Immediate notice of damage, unsuitability, or lack of parts shall be given to the entity providing such equipment.

F. Protection of Materials:

1. Protect materials and equipment from damage and provide adequate and proper storage facilities during progress of the Work. Damaged materials and/or equipment shall be replaced.

G. Cleaning:

1. Exposed parts of Work shall be left in a neat, clean, usable condition. Finished painted surfaces shall be unblemished and metal surfaces shall be polished.
2. Thoroughly clean parts of apparatus and equipment. Exposed parts to be painted shall be thoroughly cleaned of cement, plaster, and other materials. Remove grease and oil spots with solvent. Such surfaces shall be wiped and corners and cracks scraped out. Exposed rough metal shall be smooth, free

of sharp edges, carefully steel brushed to remove rust and other spots, and left in proper condition to receive finish painting.

3. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

## PART 2 - PRODUCTS - NOT USED

## PART 3 - EXECUTION

### 3.01 GENERAL REQUIREMENTS

- A. Consult the O before starting the Work.
- B. Exposed conduits shall be painted to match the surfaces adjacent to installation. Paint shall match existing.
- C. Salvaged materials removed from buildings shall be removed from the Project site as required by the Owner.
- D. Where existing structural walls are cored for new conduit runs, separation between cored holes shall be 3 inches edge, to edge from new or existing holes, unless otherwise required by the Architect.
- E. Electrical equipment shall be braced and anchored required by Code and per Structural Engineer's requirements.

### 3.02 CLEAN-UP

- A. Remove rubbish, debris and waste materials and legally dispose off the Project site.

### 3.03 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

END OF SECTION